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SEMESTER END THEORY EXAMINATION
B.Sc. (Hons.) Horticulture

Semester	: I(New)	Term	: I	Academic Year	: 2020-21
Course No.	: H/BOT-111	Title	: Introductory Crop Physiology		
Credits	: 2(1+1)				
Day & Date	: 16/07/2021, Friday	Time	: 12.00-1.00	Total Marks	: 40

Note : 1) Solve ANY FOUR questions from SECTION-A
2) Solve ANY SIX questions from SECTION-B
3) ALL questions from SECTION-C are compulsory
4) Send the PDF file of answer sheet to the email id of respective course teacher

SECTION-A

(Write the answers in 4-5 sentences only. Each question carries 4 marks)

- Q. 1 What is essential element? Describe the criteria for essentiality.
- Q. 2 Differentiate between transpiration and guttation.
- Q. 3 Define ascent of sap. Enlist different theories of ascent of sap and explain cohesion tension theory.
- Q. 4 Define photosynthesis. Describe the process of cyclic electron transfer in photosynthesis.
- Q. 5 Define absorption of water. Describe in brief mechanisms of absorption of water.

SECTION-B

(Write the answers in one sentence only. Each question carries 2 marks)

- Q. 6 (Answer in one sentence/Do as directed/Define etc.)
- A) Enlist the non-mineral elements from essential elements required by plants.
- b) Why chlorophyll-a is called as essential pigment?
- c) Define osmosis.
- d) How many ATP and NADPH₂ required for synthesis of one glucose molecule.
- e) Give the unit of water potential and water potential of pure water is.
- f) What is hydroponics?
- g) Guard cells are --- and -- shapes in dicotyledonous and monocotyledonous plant.

SECTION-C

(Choose the correct option. Each question carry 1 mark)

- Q. 7 1) Absorption spectrum of chl-a shows maximum absorption in --- and --- region of light.
- | | |
|-------------------|--------------------|
| a) Blue and Green | b) Blue and Red |
| c) Red and Green | d) Red and far Red |
- 2) Deficiency symptoms of readily mobilized essential elements will first appear in -----
- | | |
|-------------------|-----------------|
| a) Younger tissue | b) Older tissue |
| c) Roots | d) Shoots |

- 3) Respiratory quotient may be represented as
a) O_2 taken in / CO_2 evolved b) CO_2 evolved/ O_2 taken in
c) CO_2 taken in d) O_2 taken in
- 4) In soil, water available for plants is.
a) Gravitational b) Hygroscopic
c) Capillary d) Runoff water
- 5) Which hormone is produced during water stress that brings stomatal closure?
a) Coumarin b) Abscissic acid
c) Ferulic acid d) Ethylene
- 6) Kranz anatomy is typical feature of
a) C_3 plants b) CAM plants
c) C_4 plants d) C_2 plants
- 7) The first stable product synthesized in C_4 plants is
a) Pyruvate b) Glyceraldehyde 3-phosphate
c) Oxaloacetate d) Phosphoglycerate
- 8) Which organelle out of these does not participate in photorespiration?
a) Peroxisomes b) Mitochondria
c) Golgi body d) Chloroplast
- 9) Minerals which maintain cation-anion balance in cells are
a) Cl and K b) K and Fe
c) Cl and Mg d) Ca and Mg
- 10) If DPD represents diffusion pressure deficit then
a) $DPD = OP = TP$ b) $DPD = OP + TP$
c) $DPD = OP$ d) $DPD = OP - TP$
- 11) Ascent of sap is best explained by
a) Pulsation theory b) Mass flow
c) Root Pressure d) Transpiration pull
- 12) In passive transport across a membrane, when two protein molecules move in opposite direction it is called as
a) Uniport b) Antiport
c) Symport d) Co-part
